

Abstract

The objectives of the present invention are to provide a stable and simple method for producing a rare earth metal-based permanent magnet having on the surface thereof a corrosion-resistant film containing fine zinc particles dispersed therein, a corrosion-resistant rare earth metal-based permanent magnet produced by the method, a dip spin coating method being suitable for forming a coating film on thin type work pieces having various shapes, and a method for forming a coating film on a work piece. A method for producing a corrosion-resistant rare earth metal-based permanent magnet of the present invention, characterized in that it comprises providing an aqueous treating fluid, which contains a hydrolysis polymerization product of alkyl silicate and fine zinc particles having an average particle diameter of 1 μm to 50 μm and has a pH value of 6 to 8 and a viscosity of 1000 cP or less, applying the fluid on the surface of a rare earth metal-based permanent magnet, and subjecting the resultant magnet to a heat treatment at 250°C to 400°C, to thereby form a corrosion-resistant film containing fine zinc particles dispersed therein.